

SAMPLE TEST

MATHEMATICS



2007 Oregon Content Standards
Grades 3 - 8

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INTRODUCTION TO MATHEMATICS KNOWLEDGE AND SKILLS GRADE-LEVEL SAMPLE TESTS

BACKGROUND

The Oregon Department of Education provides sample tests to demonstrate the content and types of questions students in grades 3, 4, 5, 6, 7, 8, and High School might encounter on the Oregon Assessment of Knowledge and Skills (multiple-choice), which is administered each year.

ELIGIBLE CONTENT

These sample questions were taken from tests given in previous years. They were originally written to align to the 2002 Oregon Mathematics Grade-level Content Standards. A panel of content experts studied the items and selected the ones which best align to the 2007/2009 Mathematics Content Standards for grades 3-8 and high school. New for 2010-11, scores are reported out at three Score Reporting Categories each year. The titles of these SRCs changes from year to year, but describes the content for each year in general terms. The chart shows the SRCs for all grade levels.

	Score Reporting Category 1	Score Reporting Category 2	Score Reporting Category 3
3	3.1 : Number and Operations	3.2 : Number and Operations, Algebra, and Data Analysis	3.3 : Geometry and Measurement
4	4.1 : Number and Operations	4.2 : Number and Operations and Algebra	4.3 : Measurement
5	5.1 : Number and Operations and Data Analysis	5.2 : Number and Operations and Algebra	5.3 : Geometry, Measurement, and Algebra
6	6.1 : Number and Operations	6.2 : Number and Operations and Probability	6.3 : Algebra
7	7.1 : Number and Operations and Algebra	7.2 : Number and Operations, Algebra and Geometry	7.3 : Measurement and Geometry
8	8.1 : Algebra	8.2 : Data Analysis and Algebra	8.3 : Geometry and Measurement
HS	H.A : Algebra and Numeracy	H.G : Geometry	H.S : Data Analysis

As in the operational assessment, students are **strongly encouraged** to use the calculator with which they are most familiar when taking the sample test.

The answer key provided at the end of the sample test booklet identifies which of these categories each question is designed to assess. Because the item calibrations (RIT) are not accurate for the new standards, we are not able to provide a Raw-to-RIT chart as we had in the past.

The same weighting across the three Score Reporting Categories of mathematics content is used in both sample and operational tests, as much as possible. This chart shows the approximate percent weighting of SRCs by grade level:

Grade	Score Reporting Category 1	Weight	Score Reporting Category 2	Weight	Score Reporting Category 3	Weight
3	Number and Operations	35%	Number and Operations, Algebra, and Data Analysis	35%	Geometry and Measurement	30%
4	Number and Operations	35%	Number and Operations and Algebra	35%	Measurement	30%
5	Number and Operations and Data Analysis	35%	Number and Operations and Algebra	35%	Geometry, Algebra, and Measurement	30%
6	Number and Operations	35%	Number and Operations and Probability	35%	Algebra	30%
7	Number and Operations and Algebra	35%	Number and Operations, Algebra and Geometry	35%	Measurement and Geometry	30%
8	Algebra	40%	Data Analysis and Algebra	30%	Geometry and Measurement	30%
HS	Algebra	50%	Geometry	30%	Statistics	20%

WHY PROVIDE STUDENTS WITH A SAMPLE TEST?

Most students feel some anxiety as they approach a test. It is important that students know what to expect when they take the OAKS tests. The sample tests are intended to help students approach the state tests with confidence – comfortable with the test format and familiar with test-taking strategies to help them achieve the best possible score.

CONTENTS OF THE SAMPLE TEST:

This overview of the purpose for sample tests is followed by a list of test-taking tips. The sample test formatting is similar to that of the operational OAKD Online mathematics test. A “fill-in-the-bubble” answer sheet for the students to use follows the actual sample test. The answer key identifies the correct answer, the score reporting category represented, and the code of the content standard to which the item aligns. The sample test has fewer items than the actual assessment, and may not be used in place of the operational assessment.

USING THE SAMPLE TEST:

Teachers often have their students take the test as a “practice” activity in preparation for the actual Statewide Assessment. The answer key could be removed prior to making copies of the sample test for student practice. Copies of the answer key could then be provided to students to check their work or to take home and share with parents.

It is important to remember that **students are encouraged to use their calculators and any mathematics manipulatives** on the test. Providing these tools in class and encouraging students to use them during the sample test may be very beneficial in encouraging students to take their time and use the appropriate tools to help them solve problems during the actual test administration. In fact, teachers may want to demonstrate how various tools could be used to solve the multiple-choice problems as part of the practice test activities.

Teachers may use the overall class results to target areas of instruction needing further attention.

Parents may find the sample test helpful in clarifying the types of questions their child will encounter on the multiple-choice test. Parents could also assist their child in preparing for the test by practicing at home. The list of test-taking tips gives parents suggestions on ways to reduce test anxiety and promote good study and health habits in preparation for testing.

Students may wish to use the test independently to practice before the actual test administration, checking their own responses against the answer key provided at the end of the booklet. Students may benefit from re-reading the problems and analyzing both the correct and incorrect answers to the multiple-choice questions they missed.

Building principals, superintendents, district testing coordinators, curriculum leaders and others may find the sample test useful in communicating with parents, school site councils, and other community members. Parts of the sample test could be included in a newsletter or shared at meetings of local community groups to help constituents better understand the state assessment system. Although the sample tests are not as comprehensive as the complete tests administered in the Statewide Assessment, they do provide a **sampling** of the subject area content and difficulty levels students may encounter as a part of Oregon’s high academic standards.

Assessment Conditions

If the practice test is to be administered in “test-like” conditions, the following steps need to be followed:

- post a “testing, do not disturb” sign on the window or door of the classroom
- go over any directions (e.g., students are to complete the entire test or only a portion of the test at one sitting)
- expect the students to work by themselves with no talking during the assessment
- monitor student activities during the assessment
- provide any of the appropriate accommodations or modifications students use during instruction and might need during testing
- expect all students to participate

TEST-TAKING TIPS

BEFORE THE TEST

- Develop a positive attitude. Tell yourself, “I will do my best on this test.”
- Get a good night’s sleep the night before the test.
- Get up early enough to avoid hurrying to get ready for school.
- Eat a good breakfast (and lunch, if your test is in the afternoon).


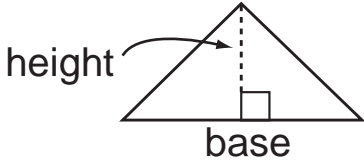
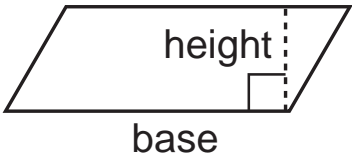
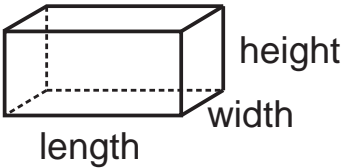
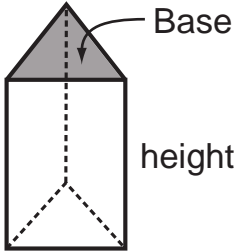
DURING THE TEST

- Stay calm.
- Listen carefully to directions.
- Read each test question and all the answer choices carefully.
- Eliminate any obvious wrong answers
- Solve the problem using paper and pencil, a calculator or by using manipulatives. See if your answer is similar to one of the choices given.
- Pace yourself. If you come to a difficult question, it may be better to skip it and go on. Then come back and focus on the difficult questions one at a time.
- Just like the Statewide Assessment, this is not a timed test. If you need more time to finish the test, notify your teacher.
- Remember the test questions are not necessarily arranged by difficulty. If you get to a question you think is too hard, that doesn’t mean the rest of the test questions will also be too hard.
- The teachers who write the test questions use “commonly made mistakes” to identify good distractors, so finding an answer like yours is not a guarantee that it is the correct answer.
- If you are not sure of an answer to a question, try these tips:
 - ◇ Cross out the answers you know are not correct and choose among the rest.
 - ◇ Read through all the answers very carefully, and then go back to the question. Sometimes you can pick up clues just by thinking about the different answers you have to choose from.
 - ◇ If you get stuck on a question, skip it and come back later.
 - ◇ It is OK to guess on this test. Try to make your best guess, but make sure you answer all questions.

AFTER THE TEST

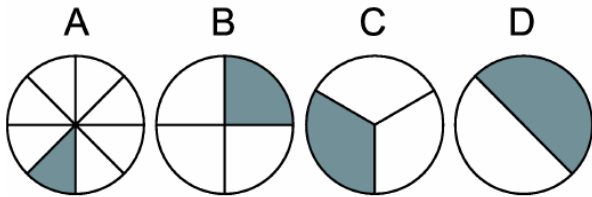
- Before you turn your test in, check it over. Change an answer only if you have a good reason. Generally it is better to stick with your first choice.
- Make sure you have marked an answer for every question, even if you had to guess.

ADDITIONAL INFORMATION on mathematics assessment may be obtained by contacting James Leigh, Mathematics Assessment Specialist, email to: James.Leigh@state.or.us

<p>MEASUREMENTS</p>	<p>1 meter = 100 centimeters 1 gram = 1000 milligrams 1 liter = 1000 cubic centimeters 1 kilometer = 1000 meters 1 kilogram = 1000 grams</p> <p>1 yard = 3 feet 1 pound = 16 ounces 1 cup = 8 fluid ounces 1 mile = 5280 feet 1 ton = 2000 pounds 1 pint = 2 cups 1 hour = 60 minutes 1 quart = 2 pints 1 minute = 60 seconds 1 gallon = 4 quarts</p>	
<p>AREA</p>	 <p style="text-align: center;">Area = length × width</p>	 <p style="text-align: center;">Area = base × height ÷ 2</p>
<p>AREA</p>	 <p style="text-align: center;">Area = base × height</p>	
<p>SURFACE AREA and VOLUME</p>	 <p style="text-align: center;">Surface Area = sum of area of all faces Volume = length × width × height</p>	 <p style="text-align: center;">Surface Area = Sum of Areas of all faces Volume = Area of Base × height</p>

2010-2013 Mathematics Sample Test – Grade 3

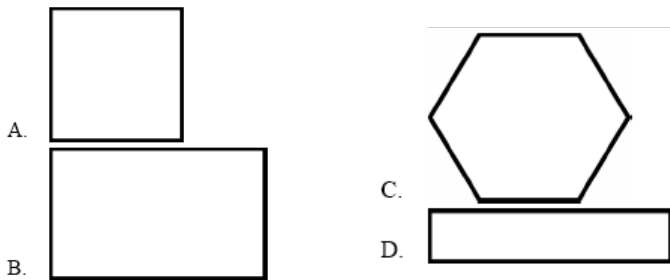
1. Mike wanted the biggest piece of pie.
Which one of the shaded pieces should he choose?



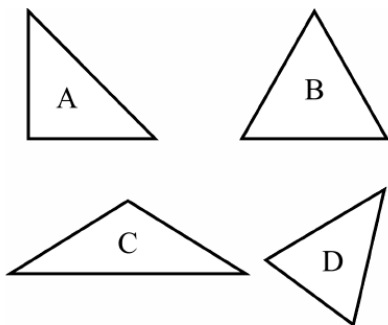
2. Maria has 14 tables. Each table needs 4 chairs.
How many chairs does Maria need?

- A. 14
B. 16
C. 28
D. 56

3. Which shape is NOT a quadrilateral?

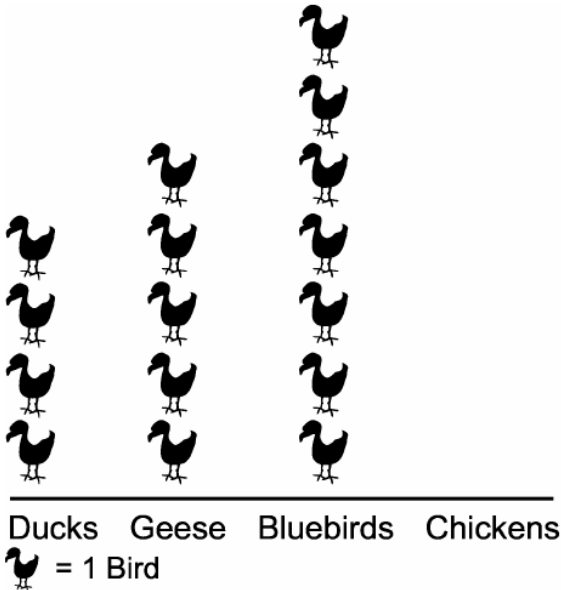


4. In which triangle is there a right angle?



2010-2013 Mathematics Sample Test – Grade 3

5. According to Mr. Quan's pictograph, how many birds does each symbol represent?



- A. 0
- B. 1
- C. 4
- D. 7

6. Which two problems have the same answer?

- A. $5 \times 8 = \underline{\quad}$ $2 \times (10 \times 2) = \underline{\quad}$
- B. $3 \times 7 = \underline{\quad}$ $(7 \times 2) \times 3 = \underline{\quad}$
- C. $6 \times 3 = \underline{\quad}$ $9 \times (1 - 1) = \underline{\quad}$
- D. $4 \times 8 = \underline{\quad}$ $(2 \times 1) \times 4 = \underline{\quad}$

7. Chad had one candy bar to share with 4 friends. He divided the candy bar into 6 equal pieces. There was one extra piece, so Chad took it also. What fraction of the candy bar did Chad take in all?



- A. $\frac{1}{6}$
- B. $\frac{2}{6}$
- C. $\frac{1}{5}$
- D. $\frac{1}{4}$

2010-2013 Mathematics Sample Test – Grade 3

8. Look at these amounts of money.
What is the pattern?

92¢ 84¢ 76¢ 68¢ 60¢

- A. Add 9¢ each time.
- B. Subtract 9¢ each time.
- C. Subtract 8¢ each time.
- D. Add 9¢, then subtract 2¢ each time.

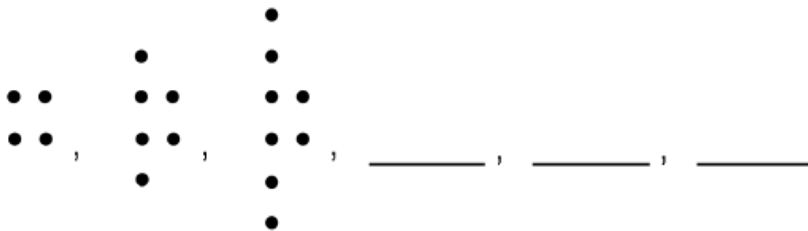
9. John has a puzzle. His brother completed $\frac{2}{8}$ of the puzzle this morning. John completed

$\frac{3}{8}$ more by lunch time.

How much of the puzzle has been completed?

- A. $\frac{6}{64}$
- B. $\frac{5}{16}$
- C. $\frac{3}{8}$
- D. $\frac{5}{8}$

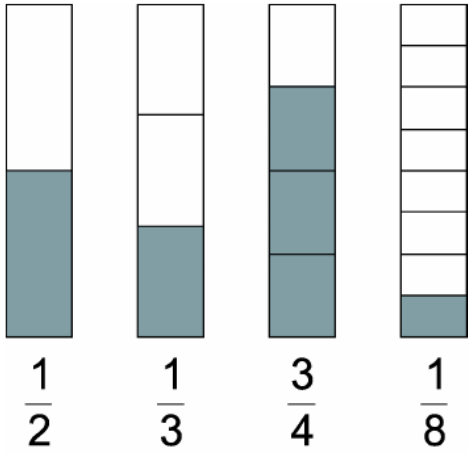
10. When continuing this pattern, how many dots would be needed in each of the next three figures?



- A. 6, 10, 12
- B. 10, 12, 14
- C. 8, 10, 12
- D. 6, 7, 8

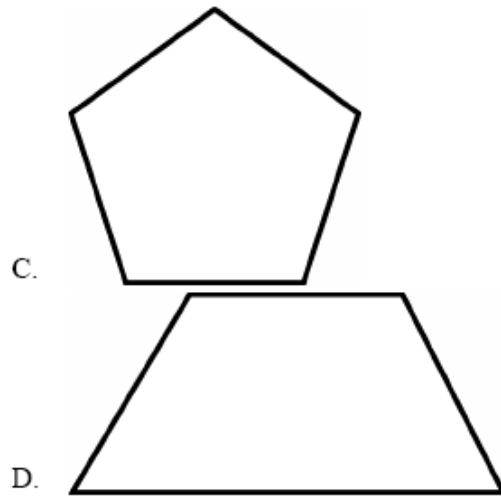
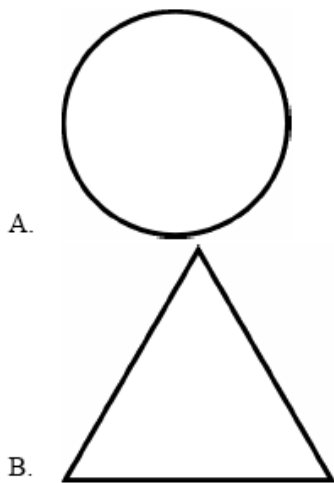
2010-2013 Mathematics Sample Test – Grade 3

11. Order the fractions from least to greatest:



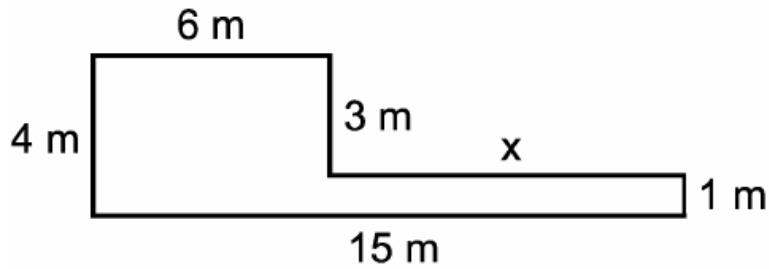
- A. $\frac{1}{2}, \frac{1}{8}, \frac{1}{3}, \frac{3}{4}$
- B. $\frac{1}{8}, \frac{1}{3}, \frac{1}{2}, \frac{3}{4}$
- C. $\frac{1}{2}, \frac{1}{3}, \frac{3}{4}, \frac{1}{8}$
- D. $\frac{3}{4}, \frac{1}{2}, \frac{1}{3}, \frac{1}{8}$

12. Which of the following shapes is a quadrilateral?



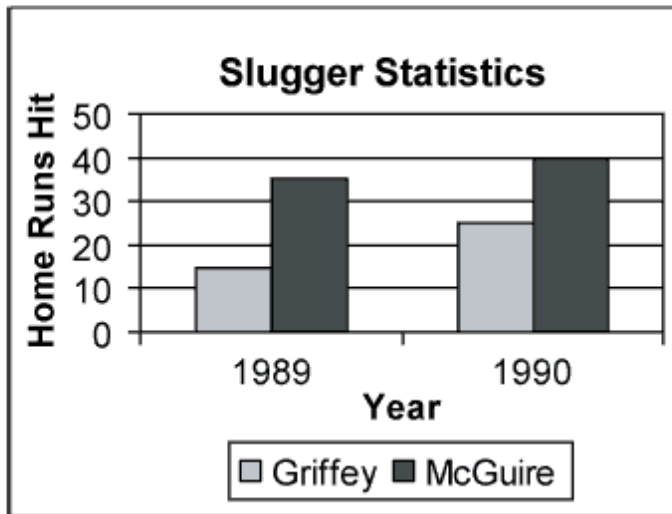
2010-2013 Mathematics Sample Test – Grade 3

13. What is the length of side x ?



- A. 8 m
- B. 9 m
- C. 21 m
- D. 22 m

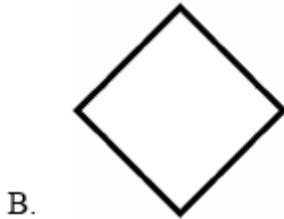
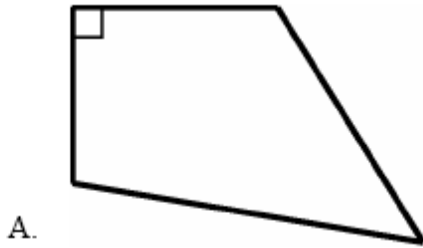
14. According to the chart, which statement is true for a player's home run total improvement from 1989 to 1990?



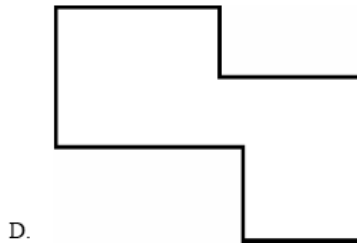
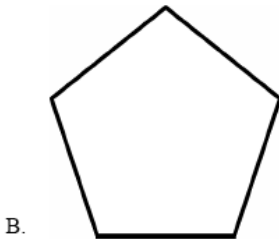
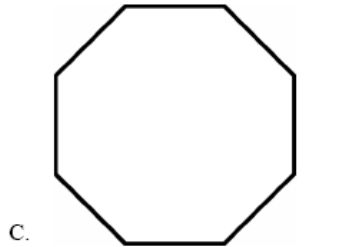
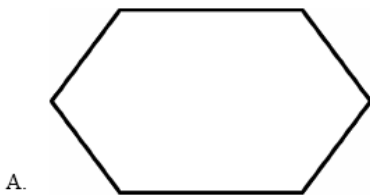
- A. McGuire improved by 5 home runs.
- B. Griffey improved by 15 home runs.
- C. McGuire improved by 15 home runs.
- D. Griffey improved by 20 home runs.

2010-2013 Mathematics Sample Test – Grade 3

15. Determine which geometric shape has exactly 2 acute angles and 2 obtuse angles?



16. Which of these figures is a hexagon?



17. What is the missing number in this pattern?

1, 3, 7, 15, ____, 63

- A. 23
- B. 30
- C. 31
- D. 45

2010-2013 Mathematics Sample Test – Grade 3

18. Bob emails Matt every 3 days. Carl emails Matt every 4 days. Dave emails Matt every 6 days. Matt gets an email from each today. How often will Matt receive email from all three on the same day?

A. Every 6th day
B. Every 12th day
C. Every 13th day
D. Every 72nd day

19. Ken has some granola bars: 7 are peanut butter, 11 are raisin and 9 are chocolate chip. What fractional amount of the granola bars are chocolate chip?

A. 9
B. $\frac{9}{3}$
C. $\frac{9}{18}$
D. $\frac{1}{3}$

20. Which quadrilateral does not always have two pairs of parallel sides?

A. Rectangle
B. Square
C. Rhombus
D. Trapezoid

Oregon Mathematics Sample Test

Use number 2 pencil.
Do NOT use ink or ball point pen.
Make heavy dark marks that completely fill the circle.
Erase completely any marks you wish to change.

Name of Student

Name of Teacher

Name of School

- | | | | |
|----|-----------------|----|-----------------|
| 1 | (A) (B) (C) (D) | 11 | (A) (B) (C) (D) |
| 2 | (A) (B) (C) (D) | 12 | (A) (B) (C) (D) |
| 3 | (A) (B) (C) (D) | 13 | (A) (B) (C) (D) |
| 4 | (A) (B) (C) (D) | 14 | (A) (B) (C) (D) |
| 5 | (A) (B) (C) (D) | 15 | (A) (B) (C) (D) |
| 6 | (A) (B) (C) (D) | 16 | (A) (B) (C) (D) |
| 7 | (A) (B) (C) (D) | 17 | (A) (B) (C) (D) |
| 8 | (A) (B) (C) (D) | 18 | (A) (B) (C) (D) |
| 9 | (A) (B) (C) (D) | 19 | (A) (B) (C) (D) |
| 10 | (A) (B) (C) (D) | 20 | (A) (B) (C) (D) |

We are not able to provide a Raw-to-RIT chart as we had in the past. Many of the items were initially calibrated under the old standards for different grades, and these items do not cover all of the new standards. Since the item calibrations (RIT) are not accurate for the new standards, any attempt to convert a raw score to a RIT score would not be valid.

Item Number	Answer Key	Score Reporting Category	2007 Grade 3 Content Standard
1	D	3.1 : Number and Operations	3.1.4
2	D	3.2 : Number and Operations, Algebra, and Data Analysis	3.2.3
3	C	3.3 : Geometry and Measurement	3.3.3
4	A	3.3 : Geometry and Measurement	3.3.1
5	B	3.2 : Number and Operations, Algebra, and Data Analysis	3.2.7
6	A	3.2 : Number and Operations, Algebra, and Data Analysis	3.2.4
7	B	3.1 : Number and Operations	3.1.1
8	C	3.2 : Number and Operations, Algebra, and Data Analysis	3.2.6
9	D	3.1 : Number and Operations	3.1.6
10	B	3.2 : Number and Operations, Algebra, and Data Analysis	3.2.6
11	B	3.1 : Number and Operations	3.1.4
12	D	3.3 : Geometry and Measurement	3.3.3
13	B	3.3 : Geometry and Measurement	3.3.8
14	A	3.2 : Number and Operations, Algebra, and Data Analysis	3.2.7
15	C	3.3 : Geometry and Measurement	3.3.1
16	A	3.3 : Geometry and Measurement	3.3.4
17	C	3.2 : Number and Operations, Algebra, and Data Analysis	3.2.6
18	B	3.2 : Number and Operations, Algebra, and Data Analysis	3.2.1
19	D	3.1 : Number and Operations	3.1.5
20	D	3.3 : Geometry and Measurement	3.3.3

Oregon Department of Education

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